

STUDIES IN THE EUPATORIEAE (COMPOSITAE). XIV.

ANOTHER EXAMPLE OF DIMORPHIC POLLEN?

R. M. King and H. Robinson
Smithsonian Institution, Washington, D.C. 20560

There are, perhaps, no more interesting genera in Mexico than the two very rare and restricted Eupatorieae, Oaxacania B.L. Robins. & Greenm. of southern Mexico and Carterothamnus R.M.King of Baja California. Both genera are shrubby plants found on rocky rather inaccessible bluffs in arid areas. Both genera are known primarily from their original localities. One further point of great interest is that these two genera seem to be very closely related to each other.

Oaxacania and Carterothamnus are readily distinguished from each other by the flattened achene of the former versus the symmetrical achene of the latter, and also by the long stalked glands on the corolla of the former versus the glabrous corolla of the latter. Other differences are also useful for distinction of the two species involved, the obsolete pappus of Oaxacania malvaefolia versus the pappus of numerous scales and one long seta in Carterothamnus anomalochaeta; the thin hardly expanded tips of the style in Oaxacania versus the thick knob like tips in Carterothamnus; the small firm cells forming the collar at the base of the anther in Oaxacania versus the very lax cells of the collar in Carterothamnus. The anther appendages also differ in shape between the two genera, those of Carterothamnus being much shorter and much more markedly truncate, but it must be noted that these appendages do seem very similar in basic structure.

There is one remaining obvious difference that has been observed between material of these two genera. The pollen found within and around the opened anther sacs of Carterothamnus flowers is distinctive in its rather small size, 13-16 μ , and relatively short spines. The pollen in the anther sacs of many collections examined of Oaxacania is unusually large, 25 μ or more, with long spines, ca. 2 μ long. While pollen grains of both of these types may be rather common in other groups of plants, they are rather distinctive when compared with various other Eupatorieae that we have seen. It has seemed rather odd to us that in a microscope slide made from Oaxacania (Pringle 6117), there are a few pollen grains that happen to be essentially like those of Carterothamnus. It seems far more than coincidence that flowers of Carterothamnus that we have examined

showed adherent grains of pollen essentially like those of Oaxacania. These pollen grains are obviously contaminants from other plants, probably brought by various pollinators. Such contamination is commonly observed in the various genera we have examined. The question is, why the contaminants here would be precisely of the rather unusual types that are in each case found in the other of the two related genera. It seems very unlikely that the Hymenoptera of Mexico run a shuttle service between Baja California and Oaxaca, localities over a thousand miles apart.

It would seem a most natural inclination to seize upon this pollen difference as a means of distinguishing the two genera. However, the coincidence of the contamination which we have observed is not the only reason for remaining doubtful. The pollen differences seem almost too great to have become established as characteristic of two such closely related genera. Such differences in pollen size are known in many species where it is associated with polyploidy or heterostyly. Whatever may be the cause, it is our suspicion that examination of a more complete sampling of the populations might show both of the described types of pollen within each genus, Oaxacania and Carterothamnus. It is our suspicion that too many similar situations occur where conclusions as to pollen type are based on too restricted a sample.